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Measurement of Microstructure of Fractured Rock Samples from Pacific Northwest National Laboratory*

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Beamline(s): X27A

The X27A beam line at the National Synchrotron Light Source has studied many geologic samples. The new task is to look at samples from Hanford, Washington. Hanford is a nuclear waste storage facility that leaked contaminants into the soil. To aid in the efforts to find where the contaminants are, the soil samples are x-rayed by X27A. The data are manipulated to get 2D and 3D images (Figs. 1 and 2). The images are used to study the porosity of the soil. Looking at the porosity will aid in determining how fluid flows through the soil. Many sets of data will be taken from different samples, and many techniques will be used to study the soil. The hope is to fully understand the technique used to visualize the data and be able to reproduce the results with other images.

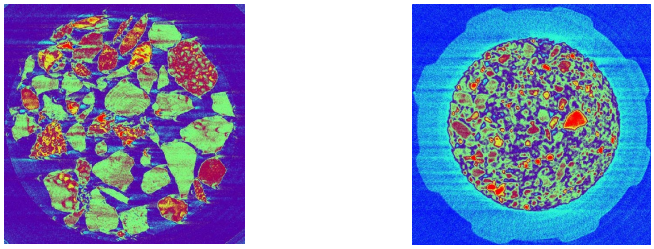

Figure 1. Images of sand (grain size between 450 and 850 micrometer, left) and sand (grain size less than 450 micrometer, right) created from the reconstructed data. Raw data was collected at beam line X27A, NSLS.

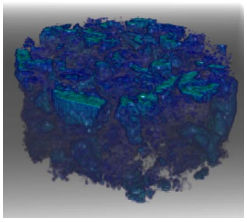

Figure 2. Three dimentional microstructure image of fractured rock.

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